

18 September 2019

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Rural Digital Opportunity Fund

Dear Ms. Dortch:

I am writing on behalf of Juniper Networks regarding the FCC's proposal to establish a Rural Digital Opportunity Fund. Juniper supports the creation of the Fund as a means of closing the digital divide and encouraging broadband deployment in unserved areas. To ensure that any such networks are built for the future, we recommend that the Fund prioritize applications with performance parameters that enable cloud services, with security by design, and with open standard-based architectures.

By way of background, Juniper Networks develops high-performance networking infrastructure spanning routing, switching, and security. We proudly consider as partners and customers state and local governments, the federal government, major enterprises, service providers, and cloud providers around the globe.

We understand among the FCC's goals in standing up the Fund are to incentivize long-term investments and build future-proof networks for unserved rural communities. As one way of achieving these ends, the FCC is considering adopting a 10-year support term for entities that participate in the auction. While this approach certainly would establish a financial incentive to build networks for the future, we believe that additional elements would help the true beneficiaries of the Fund, the unserved communities, actually receive future-proof networks.

One such element would be performance parameters that enable the delivery of services through a variety of architectures, including cloud. As you likely know, cloud networks and

cloud-based delivery of services are a rapidly growing market. With rural communities lacking easy access to health care facilities, for example, many residents are turning to cloud-based health services, such as face-to-face online consultations, prescription refills, and integration of medical records. These benefits of cloud deployment apply not only to health care but also to education and delivery of government services. If the goal of the Fund is to benefit rural communities, then it makes sense to ensure that the Fund's performance tiers will support cloud-based service delivery.

In congruence with the growth of cloud services will be a growth in edge computing. This distribution of compute power away from centralized servers and across hard-to-reach areas will reduce latency and thus facilitate near real-time service delivery.

Moreover, we know that the FCC recognizes the importance of building networks that are secure and resilient; this is a critical factor for mission critical government networks as well as for new networks built for unserved areas. In fact, network security has received considerable attention from policymakers, service providers, network infrastructure providers, and cybersecurity experts. Unfortunately, the proposal for the Fund does not appear to consider those important factors. For that reason, we recommend that the Fund include as one of its critical elements that providers purchase networking equipment with a high security aptitude; the purchase and use of equipment simply because it is low cost should not be permitted.

Finally, unserved communities and their providers can benefit from competition in the networking marketplace as competition will bring lower costs and innovation. Providers can drive competition by architecting multi-vendor networks built on open standard-based technologies. By definition, because all manufacturers can deploy open standards, they are incentivized to innovate and lower costs. Manufacturers of proprietary-based systems, however, do not have the same incentives because no one competes with them. In addition, open standard-based technologies enable multi-vendor networks because the products of multiple manufacturers are interoperable. Multi-vendor networks are inherently more secure than single-vendor networks whose proprietary protocols are subject to a single point of failure.

For these reasons, we support the FCC's establishment of a Rural Digital Opportunity Fund and ask that the program take into consideration the need for cloud-based services, security, and competition. We would appreciate your consideration of our requests. Should you require

any further information, please feel free to contact me at 978-589-0258 or mkokot@juniper.net.

Sincerely,



Sr Director PLM